

Remarks

Claims 25-28, 30-31, 32-35, 37-38, 39-40, and 42-44 were rejected under 35 USC §103(a) as being unpatentable over Jones (6,876,675) in view of Fei (2004/0067741) in and in further view of Renard (6,480,555).

The Applicants' specification provides for a method and apparatus for frequency offset compensation within a communication system. In order to assist in frequency offset compensation, the Applicants transmit a frequency synchronization burst at various frequency offsets. As stated in paragraphs 57 and 58 of the published patent application, bits within the synchronization burst are used to represent the frequency offset of the burst. For example, as stated in paragraph 57, in an 8-bit header, "seven bits may represent . . . time and frequency position information". Fundamentally, our claims specifically cover sending a burst at a particular frequency offset, and sending the time/frequency offset information as data bits in the burst. All of the cited art describes measuring frequency offsets.

In rejecting the Applicants' claims, Examiner Ho combines three references. Particularly, Examiner Ho states that Jones discloses synchronization bursts that contain bits representing frequency position information. The Examiner states that Jones is silent to performing frequency offset compensation, and utilizes Fei to fill this void. Finally, the Examiner states that both Jones and Fei are silent to disclosing that each frequency synchronization burst is transmitted at a particular, but differing frequency offset. In order to fill this void, the Examiner utilizes Renard, stating that this limitation is disclosed in Renard.

1. Jones fails to teach or otherwise suggest the use of data bits to convey frequency offset of a burst.

All claims have been amended to include the limitation that synchronization bursts contain bits representing frequency and/or time position information for the burst. The Examiner states that this limitation can be found in Jones. Analysis of the prior art reveals that the prior art fails to teach or otherwise suggest this limitation.

The Examiner states that in col. 5, lines 19-21, Jones discloses that each frequency synchronization burst contains information regarding its particular frequency

offset. Here, Jones states that a “supplemental cyclic prefix” can be used “to acquire burst and timing frequency offset.” The Applicants contend that a “supplemental cyclic prefix” is not bits representing frequency position information. Particularly, in col. 5, lines 58-64, Jones reveals that his supplemental cyclic prefix contains a duplicate of transmitted time-domain symbols. Particularly, Col. 6, lines 58-64 state:

FIG. 5 is a diagram of an OFDM burst 500 according to one embodiment of the present invention. OFDM burst 500, as depicted... includes a v length cyclic prefix 502 and a supplemental cyclic prefix 504 having length L. **Together, v length cyclic prefix 502 and supplemental cyclic prefix 504 duplicate the last v+L of N time domain symbols.** (Col 6, lines 58-64, *emphasis added*)

The frequency offset of Jones is then found to be:

$$f_{offset} = \frac{1}{2\pi M} \tan^{-1} \frac{\text{Im}\{\delta^{exp}\}}{\text{Re}\{\delta^{exp}\}}$$

Thus, as taught by Jones, the supplemental cyclic prefix used for acquiring burst and timing frequency offset, contains only a repetition of time domain symbols. *These time domain symbols do not represent frequency position information for the burst, as claimed by the Applicants.*

2. Renard fails to teach or otherwise suggest that each burst is transmitted at a particular, but differing frequency offset from a center frequency.

Independent claims 25 and 39 have been amended to include the limitation that each frequency synchronization burst from the plurality of synchronization bursts is transmitted at a particular, but differing frequency offset from other frequency synchronization bursts from the plurality of synchronization bursts. Analysis of Renard

teaches that all of his synchronization bursts are transmitted at the same frequency offset from the center frequency. This is evident in Col. 1, lines 21-22, where Renard states that each frequency burst is transmitted at 67.7 kHz above the center frequency. Because Renard fails to teach or otherwise suggest the Applicants' claimed subject matter of having the plurality of synchronization bursts transmitted at a particular, but differing frequency offset from a center frequency

3. There is no motivation to combine Jones, Fei, and Renard.

The Applicants respectfully disagree with Examiner's contention that the above combination of references would meet the "obvious" requirement under 35 USC §103. Inspection of all references reveal that the main focus of each reference is some form of frequency offset compensation. In citing a motivation to combine these references, the Examiner states that it would have been obvious to combine Jones and Fei "to modify the system of Jones with the teaching of Fei to provide compensation of frequency offset . . ." This motivation to combine makes no sense. Jones is already performing frequency offset compensation. Jones has no motivation to combine his technique of frequency offset compensation with that of Fei. The result of combining Jones and Fei would be a system that already does frequency offset compensation that somehow performs frequency offset compensation again.

The same argument can be used for combining Renard with the erroneously-combined Jones and Fei. In other words, since Jones and Fei already perform frequency offset compensation, there exists no motivation to add yet another technique of frequency offset compensation.

In summary, there must be some suggestion in either reference that anticipates the combination. In the references cited, there is no such suggestion. When one application deals specifically with frequency offset compensation, it is not proper to combine it with another reference that teaches frequency offset compensation, with a conclusory explanation that it would be obvious to combine the two references to provide frequency offset compensation. Because of this, the above combination of references fail to meet the "obvious" requirement under 35 USC §103.

No amendment made was related to the statutory requirements of patentability unless expressly stated herein; and no amendment made was for the purpose of

narrowing the scope of any claim, unless Applicant has argued herein that such amendment was made to distinguish over a particular reference or combination of references. As the Applicant has overcome all substantive rejections given by the Examiner the Applicant contends that this Amendment, with the above discussion, overcomes the Examiner's rejections to the pending claims. Therefore, the Applicant respectfully requests allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter. Finally, please charge any fees (including extension of time fees) or credit overpayment to Deposit Account No. 502117.

Respectfully Submitted,
Gorday, ET AL.

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